



IT314: Software Engineering

Lab-6: POS System

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Use Case: Process Sale

Actor

- Cashier

Preconditions

- Cashier is logged into the POS system
- Customer has items to purchase

Main Flow

1. Cashier initiates a new sale transaction
2. For each item:
 - a. Cashier scans item barcode
 - b. System retrieves item details (name, price) from catalog
 - c. System updates inventory
 - d. System adds item to current transaction
3. System calculates total
4. If a customer has a coupon:
 - a. Cashier applies coupon
 - b. System recalculates total
5. Cashier selects payment method (cash, credit card, or check)
6. Customer provides payment
7. Cashier processes payment
8. System validates payment
9. System records sale
10. System prints receipt

Postconditions

- Sale is recorded in the system
- Inventory is updated
- Receipt is printed

Alternate Flows

- 2b. If item not found in catalog, cashier manually enters item details
- 8a. If payment is invalid, return to step 6

Use Case: Handle Return

Actor

- Cashier

Preconditions

- Cashier is logged into the POS system
- Customer has items to return and original receipt

Main Flow

1. Cashier initiates return process
2. Cashier scans or enters receipt details
3. System retrieves original sale information
4. For each item to be returned:
 - a. Cashier scans item barcode
 - b. System verifies item was in original sale
 - c. System updates inventory
 - d. System adds item to return transaction
5. System calculates refund amount
6. Cashier selects refund method (cash, credit to card, or store credit)
7. System processes refund
8. System records return
9. System prints return receipt

Postconditions

- Return is recorded in the system
- Inventory is updated
- Refund is processed
- Return receipt is printed

Alternate Flows

- 2a. If receipt is not available, cashier may need to look up the transaction using other methods
- 4b. If item verification fails, cashier may need manager approval to proceed

Key Objects for POS System

Entity Objects

- Sale
- Item
- Inventory
- User (Cashier, Administrator)
- Payment
- Coupon
- Return

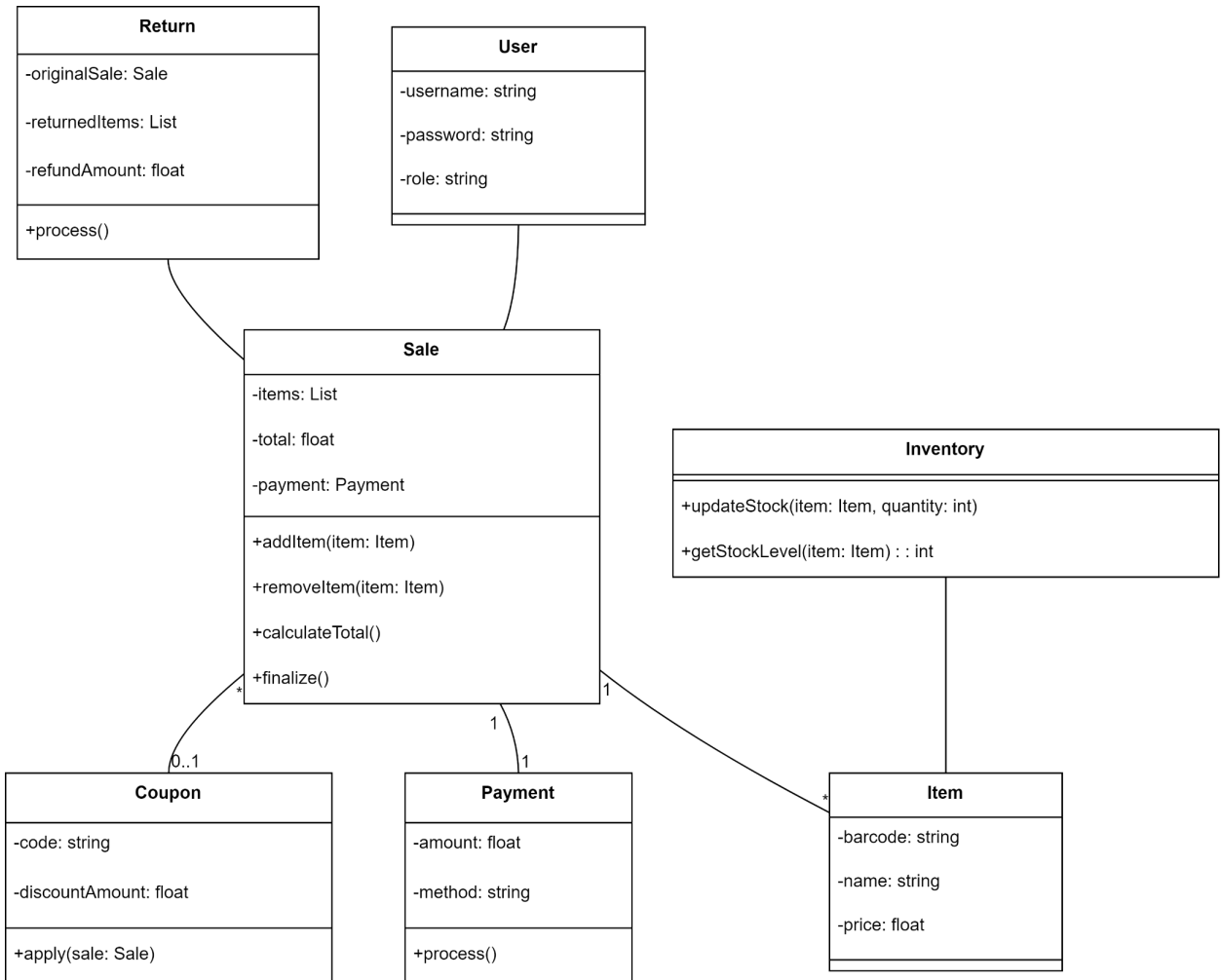
Boundary Objects

- LoginScreen
- SaleScreen
- PaymentScreen
- ReturnScreen
- ReceiptPrinter

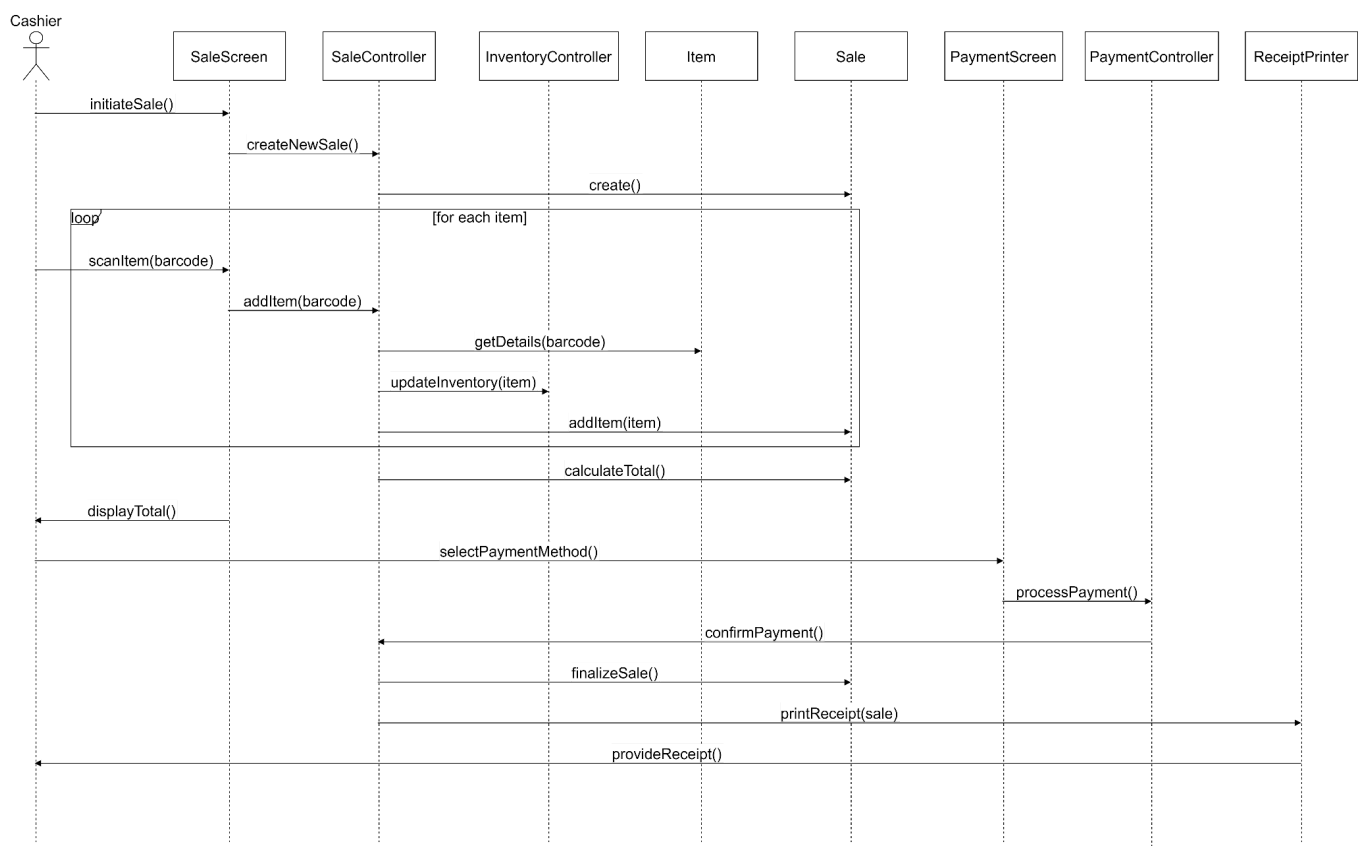
Control Objects

- SaleController
- InventoryController
- PaymentController
- UserController
- ReturnController

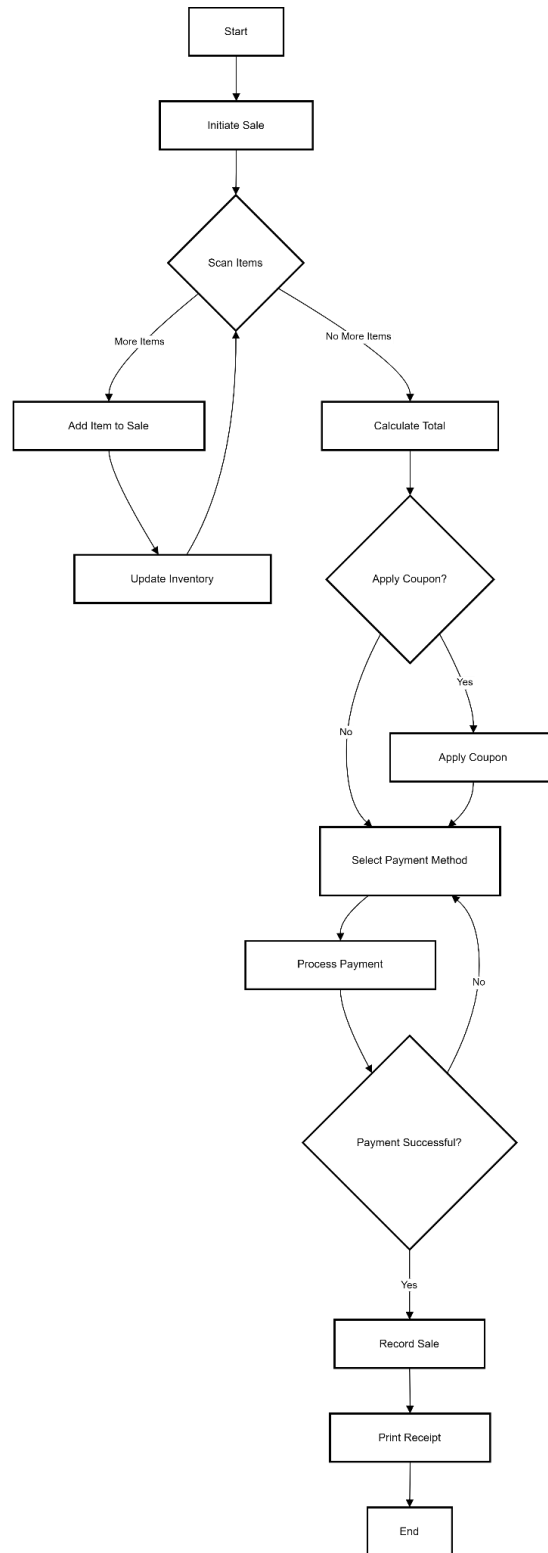
Class Model: POS System



Sequence Diagram: Process Sale



Activity Diagram: Process Return



Activity Diagram: Handle Return

